

WHAT IS CLAIMED IS:

sub 91 1. A field coil for an electromagnetic rotor comprising multiple windings, each substantially entirely coated with a powder resin having a dielectric strength of at least in the range of 1000-1500 v/mil.

5 2. The field coil of claim 1 wherein said powder resin has a thermal stability in the range of at least 155-220° C.

sub 92 3. The field coil of claim 1 wherein an electrical connector portions of the field coil are not coated.

CS 4. The field coil of claim 1 wherein said field coil comprises a single wound member, having multiple layers, each layer coated on opposite sides with said powder resin.

5. The field coil of claim 1 wherein said field coil comprises plural layers of discrete coil members, each member being coated on opposite sides with said powder resin.

5 6. The field coil of claim 1 wherein said powder resin comprises an epoxy powder resin.

6 7. The field coil of claim 1 wherein said powder resin comprises a silicone hybrid powder resin.

7 8. The field coil of claim 1 wherein said field coil has two coats of said powder resin coating applied thereto.

sub 93 9. A field coil for an electromagnetic rotor comprising a field coil substantially entirely coated with a powder resin selected from a group consisting essentially of epoxy powder resins and silicone powder resins.

10. A method of insulating a field coil for an electromagnetic rotor comprising:

- a) providing a field coil comprising multiple layers of copper bars;
- b) coating the multiple layers of the field coil with a powder resin
- 5 having a dielectric strength of at least about 1000-1500 v/mil.; and
- c) curing the powder resin.

11. The method of claim 10 including masking an electrical connector of said field coil prior to step b).

12. The method of claim 10 wherein step b) comprises applying two
10 coats of said powder resin.

13. The method of claim 10 wherein said powder resin comprises an epoxy powder resin.

14. The method of claim 10 wherein said powder resin comprises a silicone hybrid powder resin.

15 15. The method of claim 10 wherein step c is carried out by resistance heating, induction heating, convection heating or infrared heating.

16. The method of claim 12 wherein said field coil is inverted prior to application of a second coat.

17. The method of claim 10 wherein said coil is supported on a rack
20 during steps b) and c) and wherein after step c), the field coil is removed from the rack, inverted, and re-placed on the rack; and subsequently, a second coat is applied to said field coil.

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81